

Claim 1-4, 13-23, 29 and 31 were previously withdrawn from consideration as directed to non-elected invention. Applicant plans to file a divisional application.

As set forth above, Applicants request correction of Figures 7 to 9 and amendment to the specification to overcome the Examiner's objection to the drawings.

Claim 9 is amended to overcome the rejection under 35 U.S.C. § 112 second paragraph. As amended Claim 9 has the same scope and is allowable.

Rejected Claim 28 has been canceled and replaced by new claim 39, which specifically recites a guardrail having a support post with a frangible connection. The Montgomery reference does not disclose a guardrail system as claimed. It is therefore believed that claim 39 is allowable.

Applicant's attorney, James J. Maune, conducted a telephonic interview with the Examiner on February 12, 2001 to discuss the rejection under 35 U.S.C. § 112, first paragraph, of Claims 37 and 38. During that discussion, the Examiner pointed out that the specification of this application did not describe a "fastener" for connecting the joint member 152 to lower post member 144 (Figure 4-6). Applicant's attorney pointed out that, as used in the Sicking Patent, from which Claim 37 was copied, the term "fastener" includes a weld joint, and that it is well implied that joint member 152 is welded to lower post member 144.

Since the specification of this application uses the term "attached" for the connection between member 152 and lower post member 144, Applicants have amended claim 37 to use the term "attachment." This amendment does not narrow claim 37 or 38. As amended claim 37 is fully supported by the specification and is patentable.

Request for Declaration of Interference

I. Claims Copied from the '598 Patent

Claims 37 and 38, as amended, are substantially copied from Claims 1 and 2 of U.S. Patent No. 5,988,598 to Sicking, (herein the "'598 patent"), Claims 1

and 2 of the '598 patent currently enjoy the presumption of validity over the applicable prior art. As the present application is entitled to an effective filing date preceding that of the application which matured into the '598 patent, Claims 37 and 38 of the present application are also patentable over the prior art.

II. **Proposed Count**

Applicant submits the following Proposed Count in interference, which corresponds exactly to Claim 1 of the '598 patent and corresponds exactly to Claim 37 of the present application.

PROPOSED COUNT:

Claim 1 of U.S. Patent 5,988,598 or Claim 37 of Application 09/074,496.

This proposed Count is in the alternative and conforms to current practice. Claim 1 of the '598 Patent and Claim 37 of this application are directed at substantially the same subject matter, the only difference being is that Claim 37 of this application uses the term "attachment" rather than the term "second fastener".

III. **All Claims of the '598 Patent Correspond to the Proposed Count**

Claim 1 of the '598 patent corresponds exactly to the Proposed Count. Claims 2-6 of the '598 patent substantially correspond to the Proposed Count. The proposed count is for a breakaway guardrail post having an upper portion and a lower portion which are joined by a connecting joint member having a first fastener with a first failure strength and a second fastener having a second failure strength. The upper portion is further defined as having a weak impact axis and a strong impact axis.

Claim 2 of the '598 patent further defines the first fastener of the connecting joint member as having a first connector with a first failure strength and a

second connector with a second failure strength such that upon an impact force applied along the weak impact axis, the second connector fails and the upper portion rotates about the first connector. As exemplified by Fig. 11 of U.S. Patent No. 4,236,843 to Chisholm, it is known in the art of breakaway posts that upon failure of a first connecting member a portion of the post can rotate about another connecting member. In view of the teachings of the '843 patent, Claim 2 is an obvious alteration over the Proposed Count. Thus, Claim 2 substantially corresponds to the Proposed Count.

Claim 3 of the '598 patent further defines the upper post as having a tear out section adjacent the first fastener and arranged such that a first section of the first fastener pulls through the tear out section upon an impact force along the weak axis. It is an obvious design choice to form a fastener joint having a reduced failure strength by creating a weakness in the article adjacent the fastener. The strength of any fastener joint is necessarily a function of the strength of the connector member itself and the strength of the structures into which the connector is received. The tear-out section of Claim 3 represents an obvious alternative arrangement wherein the strength of the receiving member is weakened to enable the receiving member of the fastener joint to fail upon impact. Thus, Claim 3 is not patentably distinct from the Proposed Count and should be designated as substantially corresponding to the Proposed Count.

Claim 4 of the '598 patent further defines the connecting joint as having a U-shaped channel with legs overlaying opposite sides of the upper post. As illustrated in Figure 5 of U.S. Patent No. 5,664,905 ("the '905 patent"), the use of U-shaped guide with legs overlying opposite sides of the post as part of a connecting joint between upper and lower portions of a collapsible support post is known in the art. In view of the teachings of the '905 patent, Claim 4 is not separately patentable over the Proposed Count and should be designated as substantially corresponding thereto.

Claim 5 depends from Claim 1 and merely recites that the first fastener comprises a weld seam. As noted in the Office Action in the '598 patent dated

February 19, 1999 (Paper No. 2), this is an obvious design choice which does not render this Claim patentably distinct from the Proposed Count. The equivalence of the weld seam to other fasteners, such as bolts, is evident from the specification of the '598 patent wherein weld seams are indicated to be equivalent to bolts. In particular at Column 2, line 32-34 of the '598 patent, it is stated that "[t]he lower post member 14 is rigidly attached to the plates 25 by four or more bolts 24A (*or welding*). . ."

(Emphasis added).

Claim 6 depends from Claim 5 and further defines the connecting joint as having a plug weld for the reduced failure strength fastener. As set forth in the specification of the '598 patent, for a welded connection, "the breakaway force threshold is controlled by the length, size and shape of the weld." Col. 4, lines 7-9. The strength characteristics of such welds, as set forth in the specification, are well known characteristics. One skilled in the art seeking a fastener with a failure strength less than that of the weld seam of Claim 5, would consider the use of a plug weld to be an obvious choice. Thus, Claim 6 is not patentably distinct from the Proposed Count and should be designated as substantially corresponding thereto.

IV. Claims 5, 9, 36, 37, 38 and new claim 39 of the Present Application
Correspond to the Proposed Count

Claim 5 defines a breakaway support post which includes, *inter alia*, an elongated body having an upper portion and a lower portion, a rotatable coupling assembly disposed between the upper and lower portions, and means for releasably securing the upper portion of the post generally aligned with the lower portion of the post. The rotatable coupling assembly and means for releasably securing the upper portion in alignment with the lower portion, when read in view of the specification, can read on the first fastener and attachment having first and second failure strengths, as set forth in the proposed count. Thus, Claim 5 of the present application corresponds substantially to the proposed Count.

Claim 9 of the present application corresponds substantially to the Proposed Count. Claim 9 defines a breakaway support post which includes *inter alia*

an upper portion, a lower portion and means for coupling the upper and lower portion. Numerous embodiments of the Claimed coupling means are disclosed in the specification. For example, referring to Figs. 4-6, an exemplary coupling means includes a lower bracket 152 attached to a lower post portion and coupled to an upper bracket 150 by a pivot pin 154. Such elements generally correspond to the first fastener and attachment set forth in the proposed count. Rotation of the upper and lower portions is prevented until a sufficient impact force along a weak axis of the post occurs. Thus, these elements also meet the proposed count's elements that the first fastener have a first failure strength less than a second failure strength of the attachment. While this particular embodiment is a patentably distinct species of the proposed count (see Restriction Requirement mailed on September 24, 1999, Paper No. 6, Group II), it serves to illustrate that Claim 9 can fall within the scope of the proposed count and should be designated as substantially corresponding thereto.

Claim 36 corresponds substantially to the proposed count. Claim 36 is directed to a roadway guardrail system having at least one support post. The support post is defined as having an upper portion and a lower portion which are coupled by a rotatable coupling having an axis of rotation which, *inter alia*, defines a direction of high mechanical strength perpendicular thereto. The rotatable coupling is further defined as having a frangible connection for maintaining the alignment between the upper and lower portions of the support post. As noted in connection with Claim 2 of the '598 patent, it was known to have a support post rotate about some connecting structure upon failure. Thus, Claim 36 is not patentably distinct from the proposed count and should be designated as corresponding substantially thereto.

Claims 37 and 38 are substantially identical to Claims 1 and 2 of the '598 patent and correspond to the Proposed Count exactly and substantially, respectively, for the reasons set forth above with respect to the '598 patent.

Claim 39 corresponds substantially to the proposed count. Claim 39 is directed to a guardrail system having a support post which includes a first and second portion coupled to one another by a frangible connection including a rotatable coupling. The frangible connection is oriented relative to the guardrail to buckle

under an impact force applied to an end of the guardrail and to resist a rail face impact with the guardrail. As noted in connection with Claim 2 of the '598 patent, it was known to have a support post rotate about some connecting structure upon failure. Thus, Claim 39 is not patentably distinct from the proposed count and should be designated as corresponding substantially thereto.

V. **Claims 1-4, 6-8, 10-27, 29 and 31-33 of the present Application as amended do not Correspond to the Proposed Count.**

The breakaway support posts of Claims 1-4, 23 and 29, which include, *inter alia*, an elongate body and a plurality of slots formed in the elongate body, are patentably distinct from the proposed count. Claims 1-4, 23 and 29 of the present application do not recite a guardrail with an upper section and a lower section spaced apart from the upper section. Nor do these Claims recite a connecting joint member as set forth in the Proposed Count. Such Claims generally correspond to Group I identified by the Examiner in an earlier restriction requirement (Paper No. 6, mailed September 24, 1999) as a patentably distinct species of the present invention. Thus, Claims 1-4, 23 and 29 do not correspond to the Proposed Count.

Claims 6-8 further define the breakaway support post of Claim 5, which includes, *inter alia*, a rotatable coupling assembly and means for releasably securing the upper portion of the post generally aligned with the lower portion of the post. Claim 6 further defines the coupling means as having first and second U-shaped brackets coupled to one another by a pivot pin extending laterally through the brackets. Similarly, Claim 7 further defines Claim 5 by reciting respective brackets attached to adjacent ends of the upper portion and lower portion of the elongated body. Such coupling embodiments are not taught or suggested by the prior art and are not rendered obvious in view of the Proposed Count.

Claim 8 further defines Claim 5 by the inclusion of a block interposed between the guardrail and the upper portion of the elongated body to create lateral offset between the guardrail and the breakaway support post. As this is a patentably distinct invention, Claim 8 does not correspond to the Proposed Count.

Claims 10-12 depend from Claim 9 and further define the “means for coupling. . .” of Claim 9. Claim 10 defines the means for coupling as comprising breaker bars. Claim 11 further defines the breaker bars as having chamfered surfaces and Claim 12 defines the breaker bars as having protruding members to facilitate rotation. Nothing in the prior art suggests modifying the invention defined by the proposed count by the inclusion of breaker bars. Claims 10-12 generally correspond to Group IV in the previous Restriction Requirement, and therefore, have been identified by the Examiner as a patentably distinct species of the present invention and, therefore, do not correspond to the Proposed Count.

Claims 13-21 are directed to a roadway guardrail system which includes an upper portion and a lower portion having first and second members, respectively, which are coupled by at least two rods laying along an imaginary line that extends along a strong axis of the guardrail. At least one spacer is provided between the first and second members. The arrangement of rods and the inclusion of at least one spacer are not rendered obvious by the proposed count or the prior art. The guardrail configuration of Claim 13 is patentably distinct from the Proposed Count and therefore Claims 13-21 should be designated as not corresponding to the Proposed Count.

Claim 22 is directed to a roadway guardrail system which includes an upper portion and a lower portion having first and second members, respectively. The first and second members are coupled by a pin located on the guardrail side of the post and along an imaginary line that extends along a strong axis of the guardrail. At least one spacer is provided between the upper and lower portions. The arrangement of the pin and the inclusion of at least one spacer are not rendered obvious by the proposed count or the prior art. The guardrail configuration of Claim 22 is patentably distinct from the Proposed Count.

Claims 24-26 define a guardrail which includes an upper portion pivotally connected to a lower portion by a hinge having a hinge pin. The hinge is releasably restrained from pivoting by a shear pin which is smaller in diameter than the hinge pin. Unlike Claim 2 of the '598 patent, Claim 24 defines a structure which

is not rendered obvious over the Proposed Count by the prior art, including U.S. Patent

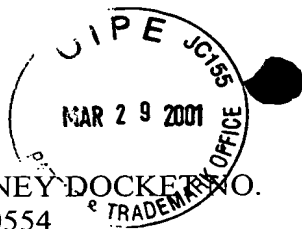
No. 4,236,843 to Chisholm. The configuration defined by Claim 24 is patentably distinct from the Proposed Count and therefore, Claims 24-26 do not correspond to the Proposed Count.

Claim 27 depends from Claim 24 and further defines the hinge as having a bracket with a slot for receiving a pivot pin, thus allowing the upper portion and lower portions to be removably engaged. Claim 27 generally corresponds to Group VI in the previous restriction requirement. This is clearly a patentable distinction over both Claim 24 and the Proposed Count.

Claim 31 depends from Claim 28 and further defines the frangible connection as comprising a releasable hinge. The use of a releasable hinge is not obvious in view of the Proposed Count and therefore represents patentable subject matter over the Proposed Count. Thus, Claim 31 should be designated as not corresponding to the Proposed Count.

Claim 32 is directed to a support post having first and second members having first and second ends. A first pair of U-shaped bracket extends from one of the ends with a gap there between. The other end includes a second bracket which is received within the first U-shaped bracket. The first and second brackets are rotatably coupled via a pin. The first and second members are maintained in a lengthened position by a shearable body extending between the second flange and at least one of the first flanges. This arrangement of flanges coupled by a pin and a shearable member defined in Claims 32 and 34 is patentably distinct from the Proposed Count.

Claim 33 is directed to a support post which includes first and second I-beam portions which are pivotally coupled via a hinge and are maintained in a lengthened position by a shearable body extending between extensions of the I-beam sections. This support post configuration is patentably distinct from the Proposed Count and, therefore, Claim 33 should be designated as not corresponding thereto.

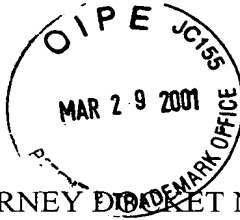


VI. Application of New Claims 37 and 38 to the Present Application

As set forth below, the elements of Claims 37 and 38 are applied to the disclosure of this application as follows:

Claim 37, corresponding to Claim 1 of U.S. Patent 5,988,598	Support in Application Serial No. 09/074,496
A breakaway guardrail post for highway crash control systems comprising:	See e.g., support post 130. Figs. 4-6
an upper post member having a weak impact axis and a strong impact axis;	Support post 130 includes upper portion 142. Figs. 4-6, specification page 19, line 24-27. Support post 130 has a weak direction and a strong direction. Specification page 13, lines 12-13.
a lower post member disposed beneath and spaced apart from said upper post member;	Support post 130 includes lower portion 144, beneath and spaced from upper portion 142. Figs. 4-6.
a connecting joint member having a first end and a second end, said first end of said joint connected at said first end by a first fastener to said upper post member and connected at said second end by an attachment to said lower post member, said first fastener having a first failure strength less than a second failure strength of said attachment.	Bracket 152 is a joint member that has a first end (upper) and a second end (lower). Figs. 4-6. The first (upper) end of bracket 152 is connected to upper post member by a first fastener including pivot pin 154, shear pin 156 and bracket 150. Figs. 4-6, specification page 20, lines 3-21. The second (lower) end of bracket 152 is attached to lower post portion 144. Figs. 4-6, specification page 20, lines 3-8. The first fastener (shear pin 156) has a failure strength less than the attachment. Specification page 21, lines 5-14.

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Claim 38, corresponding to Claim 2 of U.S. Patent 5,988,598	Support in Application Serial No. 09/074,496
<p>The post of Claim 37 wherein said first fastener further comprises: a first connector having a first failure strength,</p> <p>and a second connector having a second failure strength,</p> <p>said first failure strength greater than said second failure strength such that upon an impact force being applied along said weak impact axis, said second connector fails and said upper post rotates about said first connector.</p>	<p>The first (upper) end of bracket 152 is connected to upper post member by a first connector including pivot pin 154. Figs. 4-6, specification page 20, lines 3-21.</p> <p>The first connector also includes a shear pin 156. Figs. 4-6, specification page 20, lines 3-21.</p> <p>The pivot pin 154 has a failure strength greater than that of the shear pin 156. Upon impact along a weak axis of the post, the shear pin 156 fails and the upper portion 142 rotates about pivot pin 154. Specification page 21, lines 5-14.</p>

VII. Conclusion

Applicant has presented claims that correspond substantially to claims of the '598 patent and has identified other pending claims which also correspond substantially thereto. Applicant is entitled to an earlier filing date for these claims as the invention of the Proposed Count is disclosed in both the present application filed on May 7, 1998 (almost six months prior to the filing date of the '598 patent) and in U.S. Provisional Patent Application Serial No. 60/046,015, which was filed on May 7, 1997, (nearly 18 months prior to the filing date of the '598 patent) and from which priority is claimed in the present application.

In view of the foregoing, Applicant respectfully requests that an interference be declared between the above-identified application and the '598 patent.

In addition, Applicant has now made an earnest effort to place this case in condition for allowance in light of the amendments and remarks set forth above. Applicant respectfully requests reconsideration of the rejections and allowance of Claims 5-12, 24-27, 32-33, and 36-39 as amended.



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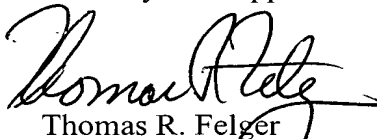
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Applicant has enclosed in the amount of \$110.00 as required for a one month extension of time from February 24, 2001 to March 24, 2001. However, the Commissioner is hereby authorized to charge any additional fees (including any additional extension fees) or credit any overpayment to Deposit Account No. 02-0384 of Baker Botts L.L.P.

If there are matters which can be discussed by telephone to further the prosecution of this application, Applicant respectfully requests that the Examiner call their attorney at the number listed below.

Respectfully submitted,

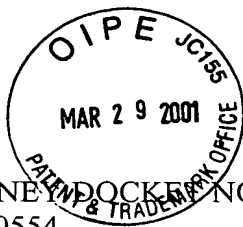
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Date: 29 MAR 2001

- cc: (1) Redline drawings for Figures 7, 8 and 9
(2) Version With Markings To Show Changes Made to the Claims



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VERSION WITH MARKINGS TO SHOW CHANGES MADE
IN THE SPECIFICATION

Page 22, line 14, delete "162" and insert --163 --;

line 15, delete "164" and insert -- 165 --;

line 26, delete "162" and insert -- 163 --;

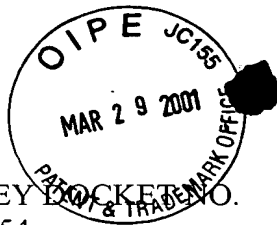
line 29, delete "162" and insert --163--;

line 32, delete "162" and insert -- 163 --;

line 33, delete "164" and insert -- 165 --.

FIGURES 7, 8 and 9 show portions of highway guardrail system 220 which includes breakaway support post 230 and guardrail 22. Breakaway support post 230 includes elongated body 32 and is similar in both design and function with breakaway support post 30. One difference between breakaway support posts 30 and 230 is the replacement of soil plates 52 and 54 by soil plates 254 and 256. As best shown in FIGURES 8 and 9, fastener assembly 160 may be used to attach soil plate 254 with elongated body 32. Fastener assembly 160 includes threaded bolt [162,] **163**, hollow sleeve or spacer 168 and nut [164.] **165**. The use of soil plate 254 and fastener assembly 160 eliminates some of the welding steps associated with attaching soil plates 52 and 54 to breakaway support post 30.

Soil plate 254 has a generally rectangular configuration. The length, width and thickness of soil plates 254 may be varied depending upon the intended application for the associated breakaway post 230 and the anticipated soil conditions adjacent to the associated roadway. An appropriately sized hole is preferably formed in the mid-point of soil plate 254 and bolt [162] **163** inserted therethrough. The head 166 of bolt 162 is disposed on the exterior of soil plate 254. Spacer or hollow sleeve 168 is then fitted over the threaded portion of bolt [162] **163** extending from soil plate 254 opposite from head 166. A corresponding hole is preferably formed in web 34 at the desired location for soil plate 254. Bolt [162] **163** is inserted through the hole in web 34 and nut [164] **165** attached thereto.



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IN THE CLAIMS:

Claims 9 has been amended as follows:

9. **(Twice Amended)** A breakaway support post for mounting a guardrail thereon as part of a highway guardrail system comprising:

- an elongated body having an upper portion and a lower portion;
- the upper portion of the elongated body having a first end;
- the lower portion of the elongated body having a second end;
- means for attaching the guardrail adjacent to the upper portion; and
- means for coupling the first end of the elongated body with the second end of the elongated body such that an impact with one end of the attached guardrail will tend to rotate the **[first] upper** portion of the elongated body relative to the **[second] lower** portion of the elongated body and the breakaway support post will resist a rail face impact with the guardrail.

Claim 28 has been canceled and substituted with newly added Claim 39.

Claim 37 has been amended as follows:

37. **(Amended)** A breakaway guardrail post for highway crash control systems comprising:

- an upper post member having a weak impact axis and a strong impact axis;
- a lower post member disposed beneath and spaced apart from said upper post member;
- a connecting joint member having a first end and a second end, said first end of said joint connected at said first end by a first fastener to said upper post member and connected at said second end by **[a second fastener] an attachment** to said lower post member, said first fastener having a first failure strength less than a second failure strength of said **attachment [second fastener]**.

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Claim 39 has been added to replace canceled Claim 28.

--39. (New) A roadway guardrail system comprising:

a guardrail;

at least one support post coupled to said guardrail and comprising an elongate body having a first portion and a second portion arranged in a substantially colinear relationship;

a frangible connection for coupling the first portion with the second portion, the frangible connection including a rotatable coupling assembly disposed between the first portion and the second portion of the elongate body; and

the frangible connection oriented relative to the guardrail such that an impact with one end of the guardrail coupled the support post will tend to buckle the support post and such that the support post will resist an impact with a railface of the guardrail.--